seconds *in vacuo*, at the level of the sea, measured at the temperature of 62° Fahr., and the latitude of the place of observation, deduced from the data contained in the trigonometrical survey, being 51° 31' 8''·4 N., is,

Inches.
By Sir George Shuckburgh's Standard.... 39·13860
By General Roy's Scale................39·13717
By Bird's Parliamentary Standard........39·13843

On the Length of the French Mètre estimated in parts of the English Standard. By Capt. Henry Kater, *F.R.S.* Read February 5, 1818. [*Phil. Trans.* 1818, *p.* 103.]

One of the objects of the Committee of the Royal Society appointed for the purpose of determining the length of the seconds' pendulum having been to compare the French Metre with the British Standard Measure, two metres were procured from Paris for that purpose ; one called the *Mètre à Bouts*, being a bar of platinum, of which the terminating planes are supposed to be parallel, and the distance between them the length of the metre ; the other termed the *Mètre à Traits*, consisting also of a bar of platinum, but upon which the length of the metre is shown by two very fine lines.

The latter was first examined, by placing it in contact with Sir George Shuckburgh's standard scale; their surfaces being in the same plane, and care being taken that their temperatures were alike. The same micrometer microscopes employed in the pendulum experiments were used, and were brought alternately over the metre and over the scale. It appeared from the mean result, properly corrected, of fourteen comparisons, the greatest difference between any one of which and the mean result is less than $\frac{2}{10,000}$ths of an inch, that the length of the *Mètre à Traits*, in inches of Sir George Shuckburgh's scale, is 39·37076 inches. The author next describes the means resorted to for ascertaining the length of the *Mètre à Bouts ;* which appears, from the results of four sets of experiments, each set consisting of five, the greatest difference between any one of which and the mean result is $\frac{1}{10,000}$th of an inch, to be 39·37081 inches of Sir George Shuckburgh's standard.

After explaining the principles upon which the column in the tables intitled " Correction for Temperature" is constructed, Captain Kater remarks, that we may consider the mean derived from both metres, viz. 39·37079 inches of Sir George Shuckburgh's scale, or 39·37062 inches of Bird's parliamentary standard, as the length of the French metre.